VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

# *Virginia Department of Health*

*DIVISION OF ENVIRONMENTAL EPIDEMIOLOGY*
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## FREQUENTLY ASKED QUESTIONS (FAQs) ABOUT MERCURY

**Q What is mercury?**

**A.** Mercury is a naturally occurring metal, which is widespread and persistent in the environment. It exists in three forms: elemental or metallic mercury, inorganic mercury, and organic mercury. Most of the mercury in the atmosphere is elemental mercury vapor; most of the mercury in water, soil, plants, and animals is inorganic and organic mercury (primarily methylmercury). The majority of mercury found in fish is methylmercury, which is tightly bound to proteins in all fish tissue, including muscle. Methylmercury is of particular concern because it can build up in fish tissue to levels that are many times greater than levels in the surrounding water.

**Q. Where is mercury used?**

**A.** Elemental mercury is used in thermometers, thermostats, switches, barometers, batteries, dental amalgam, and other products. Inorganic mercury compounds are commonly used in electrical equipment (e.g., switches and lamps), and in medicinal and skin care products, such as antiseptic creams and ointments. Organic mercury compounds are used in industry as pigments in paints and as fungicides.

**Q. How might I be exposed to mercury?**

**A.** Eating fish is the principal way that humans are exposed to methylmercury. Humans may also be exposed to mercury from breathing contaminated workplace air or by skin contact during use in the workplace (dental, chemical, and other industries that use mercury). Exposure may also occur by breathing vapors in air from spills, incinerators, and industries that burn mercury-containing fuels.

**Q. Can I be exposed to mercury from using compact fluorescent light bulbs (CFL's)?**

**A.** CFLs are safe to use in your home. No mercury is released when the bulbs are in use and they pose no danger to you or your family when used properly. CFLs do, however, contain approximately 4-5 mg of mercury (the amount equivalent to the tip of a pen), and thus should be managed responsibly when they burn out. Because of the small amount of mercury in the CFLs, if a CFL bulb breaks, following proper clean-up and disposal guidelines will minimize any risk from exposure.

Please see the EPA Webpage on Mercury Spills, Disposal and Site Cleanup for detailed instructions.
http://www.epa.gov/mercury/spills/index.htm

**Q. How can mercury affect my health?**

**A.** The nature and extent of health effects from exposure to mercury will depend on the amount to which a person is exposed. The nervous system is sensitive to all forms of mercury. Methylmercury is more toxic than many other forms because more mercury in this form reaches the brain. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus.

**Q. How can mercury affect children and pregnant women?**

**A.** Though mercury can injure adults, young children and developing fetuses are more sensitive. Mercury passes from mother to fetus through the placenta and from the circulating blood stream into the brain. It can also pass to a nursing infant through breast milk. Fetuses may have higher levels of mercury in their blood than their mothers. Harmful effects of mercury, which may be passed from the mother to the fetus, include brain damage, mental retardation, incoordination, blindness, seizures, and inability to speak. Children poisoned by mercury may develop problems in their nervous and digestive systems, and kidney damage.

**Q. How likely is mercury to cause cancer?**

**A.** There are no studies that clearly show that mercury causes cancer in humans or animals.

**Q. Is there a medical test to determine whether I have been exposed to mercury?**

**A.** Tests are available that measure the amount of mercury in blood, urine, breast milk, or hair samples. However, most of these tests do not determine the form of mercury to which one is exposed. Mercury in urine is used to test for exposure to metallic mercury vapor and to inorganic forms of mercury. Measurement of mercury in whole blood or scalp hair is used to monitor exposure to methylmercury.

**Q. What happens when mercury enters the environment?**

**A.** Mercury is released to the environment by both natural and human activities. Most of the mercury in air, water, and soil is inorganic mercury. This inorganic mercury can enter the air from deposits of ore that contain mercury, from burning coals and wastes, and from emissions by factories that use mercury. Organic compounds of mercury may be released in the soil through the use of mercury-containing fungicides. Metallic mercury can evaporate easily into the air and be carried a long distance before returning to water or soil in rain or snow. Once mercury enters lakes, rivers, or oceans in any form, it is converted to methylmercury by microorganisms (bacteria and fungi).

**Q. Are there any standards or guidelines to protect the public from exposure to mercury?**

**A.** The Food and Drug Administration (FDA) has set an action level of 1 part of methylmercury in a million parts (ppm) of seafood. The Virginia Department of Health (VDH) guideline for issuing a fish consumption advisory for mercury is 0.5 ppm. The Environmental Protection Agency (EPA) has set a limit of 2 parts per billion (ppb) in drinking water for inorganic mercury. The U.S. Occupational Safety and Health Administration (OSHA) has set limits of 0.1 milligrams of mercury per cubic meter of air ($mg/m^3$) for organic mercury and 0.05 $mg/m^3$ for metallic mercury vapor in workplace air to protect workers during an 8-hour shift and a 40-hour work week.

**Q. Where can I get more information?**

**A.** For health effects information, contact the Virginia Department of Health, Division of Environmental Epidemiology, 109 Governors Street, Madison Building 4th Floor, Richmond, VA 23219; Phone: 804-864-8141.

**Revised on March 21, 2008**